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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,181	05/20/2004	Masatsugu Yokote	023971-0422	7250

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FOLEY AND LARDNER  
 SUITE 500  
 3000 K STREET NW  
 WASHINGTON, DC 20007

EXAMINER
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LUM VANNUCCI, LEE SIN YEE

ART UNIT	PAPER NUMBER
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3611

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/849,181

Applicant(s)

YOKOTE, MASATSUGU

Examiner

Lee Lum

Art Unit

3611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 8 and 9** are rejected under 35 U.S.C. 102(b) as being anticipated by Kaufmann et al 6370460.

Kaufmann discloses a steering apparatus 10 for controlling left and right wheels of a vehicle comprising

Means 16 for controlling individual left and right driving forces of the wheels,

Means 52 for calculating a steering reaction force acting on an input device (unidentified in c2, In 32) in accordance with a difference between the left and right driving forces (c4, In 14-18, 29-34), and,

Means (c4, In 41, entire paragraph) for varying a steering reaction force so as to compensate the steering reaction force.

The reference also discloses a process for controlling left and right wheels of a vehicle, the steps derived from the structure/means described above.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3611

A. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Husain et al 6580989 in view of Kaufmann.

Husain discloses a steering apparatus for controlling the drive wheels of a vehicle comprising

Driving force control section 16 for controlling the left and right wheels 48,

Power assistance device, including elements 38, 42, and others in c3, ln 55-56, to add assistance to steering input device 20,

Steering mechanism 40 to link the wheels with the input device,

Steering reaction force calculating section (as a portion of element 16) to calculate a steering reaction force (via at least sensor 24) acting on the input device,

Steering force correcting section 26 to correct the steering assistance force so as to compensate the steering reaction force.

The reference does not disclose the steering reaction force calculating section as using the difference between the left and right driving forces of the wheels, while Kaufmann shows this arrangement in c4, ln 14-18, 29-34. While Husain uses the forces on the rack (c3, ln 62-65), it would have been obvious to one with ordinary skill in the art at the time the invention was made to include this alternate configuration, as shown in Kaufmann, as another functionally equivalent measurement by which the torque transmitted by the drive wheels may be utilized by the steering system, thus increase applicability.

B. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Husain in view of Kaufmann, and in further view of Kurishige et al 6736236.

The previous references do not disclose the steering force correcting section and the driving force control section both correcting a magnitude of the respective force in accordance with a running condition of the vehicle. Kurishige shows this arrangement in c8, "Second Embodiment", where the road surface reaction force is also an input to the system.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this arrangement, as shown in Kurishige, to provide corresponding changes to both control sections for increased accuracy as to the traveling conditions of the

Art Unit: 3611

vehicle, thus increase control and safety of the steering system. It is well-known to provide data reflecting traveling and environmental conditions to the controller of the steering system for this objective.

3. **Claims 2-6** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art does not disclose the apparatus described above further comprising, *inter alia*, the steering force correcting section as decreasing the steering assistance force when the driving force control section increases the driving force of an outer drive wheel outside a turning radius.

4. The prior art found pertinent to the disclosure, but not relied upon, includes:

Kurishige et al 6736236, Yao et al 6728615, Demerly et al 6687588, Amberkar 6678597, Sugitani et al 6634454, Shinmura et al 6597975, Stout et al 6505703, Kaufmann et al 6363305, Nishino et al 5996725.

5. Communication with the Examiner/USPTO

Any inquiry concerning this communication, or others, should be directed to Ms. Lum at 571 272 6649, M-F, 9-5. If she can't be reached, her supervisor, Ms. Lesley Morris, may be reached at 571 272 6651. Our fax number is 571 273 8300.

Information re the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) System as follows: for unpublished apps - private PAIR only, for published apps - private or public PAIR. For more info on PAIR - <http://pair-direct.uspto.gov>. For more info on private PAIR - call the Electronic Business Center at 866 217 9197.

Ms. Lee Lum-Vannucci  
Examiner  
8/17/05

